REMARKS/ARGUMENTS

The foregoing amendments in the specification and claims are of formal nature, and do not add new matter.

Prior to the present amendment, Claims 58-77 were pending in this application and were rejected on various grounds. With this amendment, Claims 66-67 and 71-73 have been canceled without prejudice and Claims 58-65, 68-69 and 74 have been amended to clarify what Applicants have always regarded as their invention.

Claims 58-65, 68-70 and 74-77 are pending after entry of the instant amendment. Applicants expressly reserve the right to pursue any canceled matter in subsequent continuation, divisional or continuation-in-part applications.

Priority Determination

Applicants rely on the fetal hemoglobulin induction assay (Example 127, Assay 107) for patentable utility which was first disclosed in International Application No. PCT/US00/04341, filed February 18, 2000, priority to which has been claimed in this application. Accordingly, the present application is entitled to at least the February 18, 2000 priority for subject matter defined in Claims 58-65, 68-70 and 74-77.

Utility

Applicants note that utility is established based on Example 127 (Assay 107). Applicants respectfully submit that drugs increasing fetal hemoglobin levels are, for example, useful in the treatment of beta-chain hemoglobinopathies such as sickle cell disease (SCD) and Cooley's anemia (beta-thalassemia). It is well established that SCD and CA can be cured with adequate reactivation of endogenous fetal hemoglobin genes silenced during development.

Specification

As requested by the Examiner, the specification has been amended to remove embedded hyperlink and/or other form of browser-executable code.

Claim Rejections – 35 U.S.C. §112, First Paragraph (Enablement)

Claims 58-62 and 70-77 are rejected under 35 U.S.C. §112, first paragraph, allegedly for "containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is mostly nearly connected, to make and/or use the invention." In particular, the Examiner notes that "Applicants has deposited the biological materials, but there is no indication in the specification as to public availability."

Applicants submit that the cancellation of Claims 71-73 renders the rejection of these claims moot.

Applicants respectfully submit that the specification has been amended to incorporate the requisite assurances that the deposit will be maintained "for 30 years from the date of deposit and for at least five (5) years after the most recent request for the furnishing of a sample of the deposit received by the depository" and to recite that "all restrictions imposed by the depositor on the availability to the public of the deposited material will be irrevocably removed upon the granting of the pertinent U.S. patent."

Accordingly, Applicants believe that the present rejection should be withdrawn.

Claim Rejections – 35 U.S.C. §112, First Paragraph (Written Description)

Claims 58-62 and 71-77 are rejected under 35 U.S.C. §112, first paragraph, for allegedly for failing to comply with the written description requirement. In particular, the Examiner notes that "[t]he claims are drawn to isolated nucleic acids encoding polypeptides having at least 80%, 85%, 90%, 95%, or 99% sequence identity with a particular disclosed sequence, and variants and fragments thereof (as encompassed by the hybridization language). The claims do not require that the polypeptide possess any particular biological activity, nor any particular conserved structure, or other disclosed distinguishing feature."

Applicants respectfully disagree and traverse the rejection.

Applicants submit that the cancellation of Claims 71-73 renders the rejection of these claims moot.

Without acquiescing to the Examiner's position, and solely in the interest of expediting prosecution in this case, Claims 58-62 (and, as a consequence, those claims dependent from the same) are amended to recite the encoded polypeptide that "has fetal hemoglobin inducing activity." This biological activity, coupled with a well defined, and relatively high degree of sequence identity are believed to sufficiently define the claimed genus, such that one skilled in the art would readily recognize that the Applicants were in the possession of the invention claimed at the effective filing date of this application. The Examiner is therefore respectfully requested to reconsider and withdraw the present rejection.

Claim Rejections – 35 U.S.C. §112, First Paragraph (Enablement)

Claims 58-62 and 74-77 are rejected under 35 U.S.C. §112, first paragraph, allegedly because "there is no functional limitation in the claims." The Examiner further asserts that "[t]he specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims."

Applicants respectfully disagree and traverse the rejection.

Without acquiescing to the Examiner's position, and solely in the interest of expediting prosecution in this case, Claims 58-62 (and, as a consequence, those claims dependent from the same) have been amended to recite the encoded polypeptide that "has fetal hemoglobin inducing activity." Since the claimed genus is now characterized by a combination of structural and functional features, any person of skill would know how to make and use the invention without undue experimentation based on the general knowledge in the art at the time the invention was made. As the M.P.E.P. states, "The fact that experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation" *In re Certain Limited-charge cell Culture Microcarriers, 221 USPQ 1165, 1174* (Int'l Trade Comm'n 1983), *aff'. sub nom., Massachusetts Institute of Technology v A.B. Fortia,* 774 F.2d 1104, 227 USPQ 428 (Fed. Cir. 1985) M.P.E.P. 2164.01. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the present rejection.

Claim Rejections – 35 U.S.C. §112, Second Paragraph

Claims 58-77 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner notes that "it is not clear if the protein identified as PRO1114 is a soluble protein or if it is expressed on a cell surface (i.e., a receptor protein)." Accordingly, the Examiner states that the limitation that the claimed protein comprises an "extracellular domain" and the recitation of "the extracellular domain ... lacking its associated signal sequence" is indefinite.

The Examiner further asserts that the recitation of "wherein said hybridization occurs under stringent conditions" in Claim 72 is vague and indefinite.

Applicants submit that the cancellation of Claims 66-67 and 71-73 renders the rejection of these claim moot.

Further, without acquiescing to the propriety of this rejection, solely in the interest of expediting prosecution in this case, the term "extracellular domain ... lacking its associated signal sequence" is no longer present in Claims 58-63 (and, as a consequence, those claims dependent from the same).

Accordingly, Applicants respectfully request that the present rejection under 35 U.S.C. §112, second paragraph, be withdrawn.

Claim Rejections – 35 USC § 102

Claims 58-70 are rejected under 35 U.S.C. 102(e) as being anticipated by Parham *et al.*, U.S. Patent No. 6,586,228, filed March 8, 1999. The Examiner alleges that Parham *et al.* disclose a nucleic acid molecule (SEQ ID NO:1) that has 98.1% sequence identity over a stretch of 1300 bases.

Applicants respectfully disagree and traverse the rejection.

Applicants submit that the cancellation of Claims 66-67 and 71-73 renders the rejection of these claims moot.

Further, Applicants respectfully submit that SEQ ID NO: 351 of present application comprises 2056 nucleotides. Accordingly, Parham *et al.* discloses a polynucleotide (SEQ ID NO:1) having only 66.2% sequence identity to entire length of SEQ ID NO:351 of the instant application. Furthermore, Parhman *et al.* do not disclose a polynucleotide sequence having 100% sequence identity to the full-length coding region of SEQ ID NO:351 or a polypeptide sequence having 100% sequence identity to the polypeptide sequence of SEQ ID NO:352.

As amended, Claims 58-62 recited "an isolated nucleic acid having at least" 80-99% "nucleic acid sequence identity to the nucleic acid sequence of SEQ ID NO:351 wherein the encoded polypeptide has fetal hemoglobin inducing activity." Claim 63 has been amended to recite an isolated nucleic acid comprising "a nucleic acid sequence encoding the polypeptide of SEQ ID NO:352", "a nucleic acid sequence encoding the polypeptide of SEQ ID NO:352, lacking its associated signal peptide", "the nucleic acid sequence of SEQ ID NO:351", "the full-length coding sequence of the nucleic acid sequence of SEQ ID NO:351" or "the full-length coding sequence of the cDNA deposited under ATCC accession number 209905."

Therefore, as amended, Claims 58-63 (and, as a consequence, those claims dependent from the same) are not anticipated by Parham *et al.* Accordingly, Applicants respectfully submit that Parham *et al.* is not prior art under 102(e) and the present rejection should be withdrawn.

CONCLUSION

In conclusion, the present application is believed to be in *prima facie* condition for allowance, and an early action to that effect is respectfully solicited. Should there be any further issues outstanding, the Examiner is invited to contact the undersigned attorney at the telephone number shown below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. **08-1641** (referencing Attorney's Docket No. **39780-2630 P1C90**).

Respectfully submitted,

Date: December 22, 2004

By: _____
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